

## Ivar's: A Carbon Footprint Measurement Case Study

- Footprint measures a total of 23 restaurants and seafood bars.
- Natural gas use is the most significant source of the company's greenhouse gas emissions (62%).
- Company continues to make planned energy and water efficiency upgrades, many with rebates from local utilities.

### Company Overview

**Sector:** Restaurant and Food Service  
**Service Area:** Washington and California  
**Employees:** 356 (Seattle locations only)

### Corporate Profile



Ivar Haglund with seagulls on Pier 54, 1978, from HistoryLink.org, photo credit: Paul Dorpat

Founded in 1938 by Ivar Haglund, a “Seattle character, folksinger, and ‘King of the Waterfront,’ the Ivar’s family of restaurants is known for its uniquely Northwest seafood and quirky character. Locals are also familiar with the “4<sup>th</sup> of Jul-Ivar’s” annual fireworks show over Elliot Bay each summer.<sup>1</sup> Ivar’s restaurants and seafood bars are very popular, serving nearly 4 million customers each year across 60 locations in Washington and California. The Kidd Valley fast food chain, originally launched from a small storefront in Seattle’s University District in 1975, has also been part of the Ivar’s family since 1989.

### Why a climate strategy?

Ivar’s commitment to sustainability emerged from the company’s commitment to control costs. Investments in efficiency and conservation programs make sound business sense and have helped Ivar’s reduce its environmental impacts. Since the late 1990s, these investments have saved money, energy, and water and have reduced the amount of waste generated. With financial assistance from the Saving Water Partnership, the region’s utility-funded rebate program, Ivar’s replaced ice machines and refrigeration systems in its full service restaurants and switched to thawing frozen fish in walk-in refrigerators rather than under running water.<sup>2</sup> In 2001, Ivar’s was recognized by the American Water Works Association for its outstanding efforts to integrate water-saving technologies and practices in its kitchens. It is estimated that these changes will save the company \$1 million by 2011. Ivar’s is not focused on water alone. Most Ivar’s locations recycle cans, bottles, cardboard, and used cooking oil. More recently, in response to requests from its employees, Ivar’s began recycling food scraps at its two full service restaurants and is testing the program at one Kidd Valley location. Based on results from these efforts, Ivar’s will consider expanding the program.

In its 70<sup>th</sup> year of business, Ivar’s is aware that climate change, especially its impact on fish stocks, may prove to be a serious barrier to its core business – providing quality Northwest seafood to its 4 million customers each year.

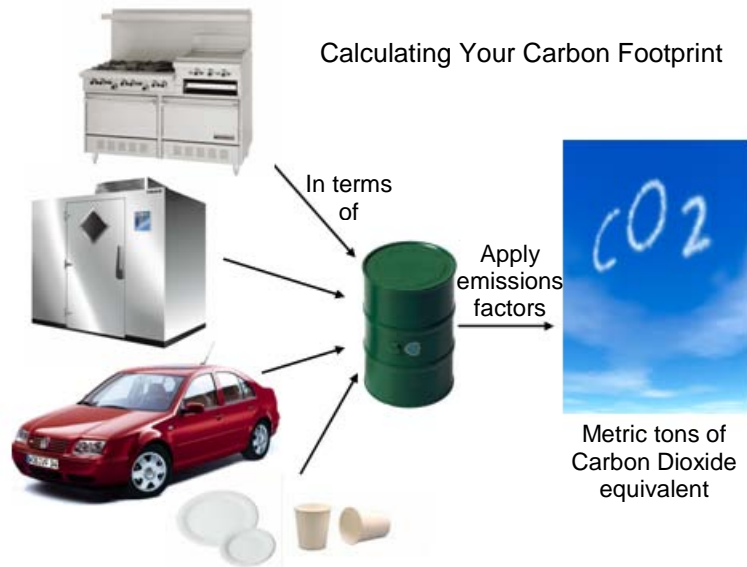
<sup>1</sup> In April 2009, Ivar’s announced the redirection of funds from the 4<sup>th</sup> of Jul-Ivar’s fireworks show to hunger relief in the Puget Sound in partnership with Northwest Harvest.

<sup>2</sup> Downloaded from [http://www.savingwater.org/docs/refrigeration\\_casestudy.pdf](http://www.savingwater.org/docs/refrigeration_casestudy.pdf) on March 6, 2009

When the Seattle Climate Partnership (SCP) asked Ivar's to be a case study for measuring a restaurant's carbon footprint, Bob Donegan, President, quickly agreed. Mr. Donegan was willing to invest company time in understanding and documenting its climate impacts. He explains, "You can't manage it unless you measure it first. Once we establish a base, we will seek ways to improve." While Ivar's does not have a formal climate strategy, addressing climate change is very much a factor in its business decisions. In its 70<sup>th</sup> year of business, Ivar's is aware that climate change, and especially its impact on fish stocks, could significantly affect future business.

## The Footprint

A carbon footprint is a measure of carbon dioxide (CO<sub>2</sub>) and other green house gases (e.g., methane) produced by an organization, resulting primarily from fossil fuel-based energy use and transportation. At a minimum, carbon footprints include building and operations energy use. Business or employee travel, waste generation, and emissions associated with the production or use of goods and services may also be included to create a more complete footprint. Activity data such as kilowatt hours consumed, vehicle miles traveled, or sheets of paper used are converted to metric tons of carbon dioxide equivalent by using emissions factors.<sup>3</sup> Often the resulting emissions are normalized by employee, units sold, or gross revenue to establish a valid comparison for successive footprints.



A food service company such as Ivar's was faced with many of the same decisions other types of businesses make when conducting a footprint. These decisions include determining which departments and business activities to include and identifying a baseline period from which activities will be measured.

## Developing the Footprint

### 1. Determine Organizational Boundaries



A business begins the footprinting process by determining which part(s) of its operations to include in its footprint. A business may choose to look at all operations in a particular geographic area, limit it to certain types of business units (e.g., full service restaurants but not snack bars), and include or exclude subsidiaries and contractors. Many factors influence these decisions such as the type of business (e.g., retail, manufacturing, and service), ability to influence the activities producing emissions, and ease of collecting data.

For this study, Ivar's chose to include all of its Seattle locations, which account for over 30% of its employees and constitute a majority of its restaurants, seafood bars, and

<sup>3</sup> Sources for these emissions factors are the U.S. GHG Inventory, Seattle City Light, EPA Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, EPA Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, and the EPA Life Cycle study; for more information please see the "Conversions & EFs" tab of the Seattle Climate Partnership Carbon Footprint Calculator.

concession stands. This geographic scope is consistent with how Ivar's tests new products and practices. Mr. Donegan explains, "We start simple, understand and make it right, then expand."

### Summary of locations in the scope of the footprint

A total of 23 Seattle locations were included in this footprint: 2 full service restaurants, 5 Kidd Valleys, 4 Ivar's Seafood Bars, and 12 concession stands. These concession stands consist of 7 Ivar's Seafood Bars and 5 Kidd Valley stands in the city's 3 major sports arenas: Safeco Field, Qwest Field, and Husky Stadium. Ivar's leases space for all except 8 locations, which are owned. Most locations tend to be in multi-tenant or multi-use buildings.



## 2. Establish a Baseline

Establishing a baseline year is critical to a business' ability to measure its progress toward its carbon reduction goals. Businesses typically choose a calendar year for which all or the majority of data are available, but any twelve-month period can serve as a baseline. Ivar's excels at tracking all of its utility and consumption data, allowing the company to easily set a baseline for the most recent twelve-month period. Therefore, Ivar's baseline footprint spans the period from June 2007 to May 2008.



## 3. Determine Scope

Next, a business decides which activities to include in its footprint. On-site energy consumption constitutes the most basic footprint; however, many other activities can also be included. To decide which additional activities to include, a business might consider the following questions:

- o Which data are tracked and what can be collected with relative ease?
- o What are likely (or, based on industry averages, known to be) our biggest impacts?
- o What activities can we directly influence to shrink our footprint?

Another factor that helps businesses make these decisions is the measurement tool itself. The Seattle Climate Partnership offers several resources to support its members in this effort, including a carbon footprint calculator with localized emission factors.<sup>4</sup> The SCP calculator is widely considered to be one of the most accurate and user-friendly in the region. The calculator focuses on four areas that typically account for the largest share of a business carbon footprint:

- o **energy use**
- o **transportation** (business travel and employee commuting)
- o **waste generation**
- o **materials and services consumed** (e.g., paper products and other materials)

The SCP calculator then converts activity data, such as miles driven and tons of recycling generated, into emissions in metric tons of CO<sub>2</sub> equivalent.

Ivar's chose to include business travel, energy consumption (electricity and natural gas), waste generation, water use, and the consumption of food service paper products. There were two primary advantages to including these activities. First, business activity data could be obtained without disrupting business operations. Second, Ivar's felt that it had the greatest potential to reduce emissions from these activities.

The Seattle Climate Partnership's carbon footprint calculator provides several options for input data, from using actual data to using industry estimates. For example, a business that occupies a multi-tenant building may know the kilowatt hours consumed by the entire building but not have a breakdown for the

<sup>4</sup> The carbon footprint calculator can be found here: [http://www.seattle.gov/climate/docs/CO2\\_Tool\\_3.0.xls](http://www.seattle.gov/climate/docs/CO2_Tool_3.0.xls)

spaces they occupy. In such a situation, the calculator will generate consumption data based on the percent of floor space the business occupies in the building. Similar alternative calculations exist for employee commuting and the generation of waste, recycling, and compost.

The calculator presents results in terms of total emissions as well as emissions normalized by number of employees. Both methods of framing the data are useful for a business such as Ivar's, although the figure per employee is particularly informative. Like all food service establishments, Ivar's experiences employee turnover, albeit at a comparatively low rate for the industry, which means that its workforce size is often in flux. A normalized emissions figure allows Ivar's to compare the results of footprints over time, no matter the number of employees currently on the payroll.

#### 4. Collect Data

Ivar's collected or estimated activity data in four areas and converted them into emissions data using the SCP calculator:

##### a. Energy Use<sup>5</sup>



Energy use includes electricity, natural gas, and steam consumed by a business. Typically, energy data are available in the following formats:

- Electricity use - kilowatt hours (kWh) per month for each meter
- Natural gas use - therms (thm) per month for each meter
- Steam heat use - thousand pounds (KLbs) per month

Ivar's uses energy primarily for building heating and cooling, cooking, lighting and food storage. Ivar's keeps meticulous records of its energy use, which made data collection easy. See Appendix B for an example of Ivar's utility consumption tracking sheet. Electricity and natural gas consumption data were available for 11 of the 23 locations included in this study. This energy information was included in the footprint calculations. The remaining 12 locations represent stadium concession stands. These locations are not sub-metered, and an estimation of energy consumption based on square footage is likely to be inaccurate since energy use varies widely throughout stadiums. Should energy consumption data become available for these locations in the future, these can be included in successive footprints.

##### b. Transportation

Transportation typically refers to business travel and employee commuting. Businesses may choose to include one or both, depending on the type of data available and the extent to which the business can influence employee transportation behaviors. Ivar's did not include employee commuting miles in its footprint because it does not track these data at this time. However, Ivar's may choose to include employee commuting in future footprints. While this addition in the future will make the data from the baseline not directly comparable overall it will aid future carbon reduction planning efforts.

For Ivar's, business travel refers to the miles traveled by the company's district managers and information technology, maintenance, human resources, and marketing support staff who typically drive among stores. It does not include miles traveled by vendors. The company's employees use their own vehicles for business travel and file for reimbursement for the miles traveled, making this measurement simple. Business miles traveled during the baseline period were entered into the calculator which, for Ivar's, used average vehicle gasoline efficiencies to calculate carbon emissions. The calculator can generate more accurate emissions information if a business inputs actual fuel efficiencies for vehicles used for business travel.

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<sup>5</sup> In 2008, Ivar's worked with Renewable Choice Energy, a carbon emissions offsets provider to measure the carbon impact associated with energy consumption for its 60 Washington and California stores. That year, electricity and natural gas use at these locations was calculated to produce 5,360.02 metric tons of carbon dioxide.

c. Waste Generation

Gathering solid waste data was very simple thanks to the utility tracking system Ivar's uses (see Appendix B). While using actual tonnage or volume data yields the most accurate results, the SCP calculator is designed to help businesses estimate waste based on costs or employee counts (i.e., industry standard estimates) if they do not have access to their specific waste volumes.

**Waste:** Ivar's provided cost information for each of the Seattle locations, which were entered into the carbon footprint calculator. Using an average cost of \$150 per ton of waste, the calculator converts these costs to waste quantities.<sup>6</sup>

**Mixed Recycling:** Ivar's provided cost information for all its Seattle locations with recycling service (cans, bottles, glass, and cardboard). Some of Ivar's locations do not currently have recycling service, including the Alki, Northgate Mall, and Aurora branches of Ivar's Seafood Bars and the Northgate Mall



Kidd Valley. The calculator converted costs to recycling quantities using an average cost of \$100 per ton of material.<sup>6</sup> Recycling, a carbon-reducing activity, does not however, directly shrink the business' own carbon footprint. Instead, the use of recycled feedstock reduces the energy required to extract and process virgin feedstock such as oil or metal. The reduction in the often-significant carbon emissions associated with those activities results in a regional or global decrease of greenhouse gases.

**Composting:** Ivar's provided cost information for its three Seattle locations that have compost programs. The calculator converted costs to composting quantities using an average cost of \$125 per ton of material.<sup>6</sup> The Salmon House, a full service restaurant and the first Ivar's location to implement food scrap collection for composting, established the program during the last five months of the baseline period. The Kidd Valley on Aurora Avenue began composting in May 2008, that is, for only one month during the baseline year.

Composting, which is the aerobic decomposition of organic material, avoids methane production. Methane, a potent greenhouse gas, is produced in landfills when organic material such as food degrades in the absence of oxygen. Composting also has upstream and use-phase benefits where its use replaces or reduces the use of pesticides and synthetic/petroleum-based fertilizers, the manufacture and transport of which are associated with carbon emissions. Similar to recycling, rather than shrinking the business' footprint directly, composting leads to regional and global reductions in greenhouse gases.

d. Materials Use



Ivar's Seafood Bars and Kidd Valley locations use a variety of take-out and disposable containers including plates, cups, boxes, and food boats. Many of these products are made primarily of paper, including recycled paper and pulp. Paper production impacts the environment and climate throughout its life cycle – from deforestation to methane production at landfills. The calculator estimated emissions using the total weight of paper products that Ivar's used.<sup>7</sup> The company's vendors provided the total number of units purchased and the per-unit weight for all paper take-out and disposable containers. When weights were unavailable via the vendor, products were weighed on a postal scale.



<sup>6</sup> Obtained from the City of Seattle's Resource Venture program, which offers Seattle businesses technical assistance on conservation.

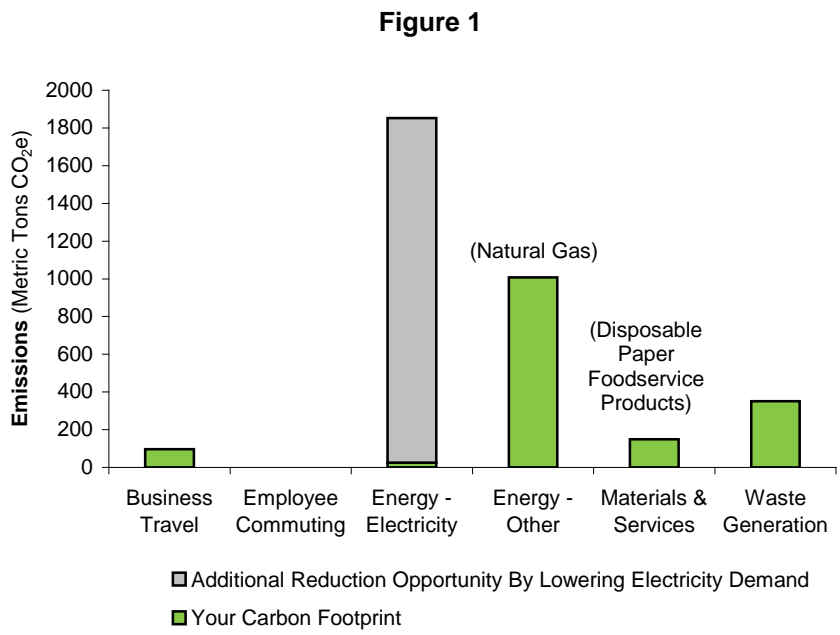
<sup>7</sup> The emissions factor for "Boxboard A" (0.29 MTCE/ton of product) in Exhibit 2-2 of the EPA report "Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks" was used to calculate process and transportation emissions for Ivar's paper products. Boxboard A assumes recycled content of 23%.

## Footprint Results

From June 2007 to May 2008, Ivar's Seattle locations generated 1,630 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e), which translates to 4.6 (MTCO<sub>2</sub>e) per Ivar's employee.<sup>8</sup> Absolute emissions for all 23 Seattle locations are presented below in Table 1 and include business travel, energy consumption, materials use, and waste generation.<sup>9</sup>

<b>Table 1</b>		
<b>TOTAL EMISSIONS</b>	<b>1,630 metric tons of CO<sub>2</sub> (MTCO<sub>2</sub>e)/year</b>	
<b>EMISSIONS/EMPLOYEE</b>	<b>4.6 metric tons of CO<sub>2</sub> per employee (MTCO<sub>2</sub>e)/year</b>	
<b>Emissions Source</b>	<b>Annual Consumption</b>	<b>CO<sub>2</sub> Metric Tons</b>
Natural Gas	189,945 therms	1,007.9
Garbage	834 tons	350.4
Paper	281,485 pounds	149.2
Car & Truck	245,323 miles	96.9
Electricity	3,088,750 kWh	25.0

The breakdown of Ivar's footprint results, by major business activity are represented graphically in the Figure 1 below.



**Being Energy Efficient**

The grey section of the electricity bar in the chart adjacent represents the potential Ivar's has to reduce its electricity use through increased efficiency. Not all of the demand for electricity in Seattle can be met by hydropower alone. More carbon-intensive and costly energy sources, such as natural gas-powered combustion engines are required to meet new demand. To reduce the need for additional power sources, Seattle City Light customers can maximize energy efficiency at their facilities today. This makes clean hydropower energy available to other customers.

<sup>8</sup> By comparison, the carbon footprint calculated for energy consumption for all Ivar's locations in Washington and California was 5360.2 MTCO<sub>2</sub> or 4.9 MTCO<sub>2</sub> per employee.

<sup>9</sup> Consumption data for electricity and natural gas were not available for 12 of the 23 locations included in this study. These represent stadium concession stands, which are not sub-metered.

Natural gas emissions top the chart for all Ivar's and Kidd Valleys Seattle locations ("Energy-Other" in Figure 1). Waste generation (22%), materials use (9%), and business travel (6%) produce significant emissions as well. By comparison, electricity is a very small fraction of the total footprint (at 1.5 %). While the 11 locations for which electricity usage information is available consume about 3 million kilowatt hours annually, this energy use results in only 25 MTCO<sub>2e</sub>.<sup>10</sup> Emissions are so low because most of the electricity supplied by Seattle City Light comes from low-emissions hydroelectric sources.

## Business Continues to be Climate Friendly

A carbon footprint is yet another tool Ivar's can use to prioritize its conservation efforts. While Ivar's has chosen not to set carbon reduction targets, the company recognizes the value of the footprint and will continue to track its progress each year.

In the meantime, sustainability is business as usual for Ivar's President Donegan – he continues to keep the company's attention focused on implementing its long-established sustainability initiatives, such as

- lighting and heating/cooling upgrades
- testing and installing energy-efficient appliances
- encouraging employees to reduce energy use
- implementing a regular maintenance schedule (see Appendix D for a more complete list of initiatives completed or underway at Ivar's)

Ivar's has also made a significant shift from virgin fiber to recycled pulp paper products (e.g., food boats) in order to reduce its paper-related impacts. The company continues to identify and test products, such as compostable foodservice ware to use in their restaurants. Ivar's tests and implements new products and practices based on operational efficiencies, customer durability, and cost.

Ivar's isn't stopping here, however. President Donegan is currently working hard to make the annual 2009 Boeing Classic Golf tournament at the Tournament Players Course at Snoqualmie Ridge the first ever professional golf tourney that is waste free. Mr. Donegan, who serves on the Tournament committee, is working with Cedar Grove Composting, the Puget Sound region's largest composting company, to supply the tournament with compostable foodservice ware in order to reduce the amount of landfill-bound waste produced over that weeklong period.

## Communicating with Employees and Guests

As with all new initiatives, Ivar's plans to share the baseline carbon footprint with its employees via the monthly employee newsletter and quarterly reports to management staff. Mr. Donegan sees the new manager training as another important forum to share this information. In addition, Ivar's plans to recognize store and employee contributions to reducing the company's carbon emissions.

Ivar's is considering sharing its sustainability initiatives with customers through a banner program in stores, on its website, and in e-newsletters. Before widely distributing its footprint results, Ivar's will measure its footprint annually with the goal of comparing it with those of previous years, noting the impacts of its sustainability programs and conservation measures on its emissions levels.

## Advice for Restaurateurs

Mr. Donegan has two words for restaurants interested in measuring their carbon footprints: **start simply**. Restaurants should begin the process by identifying information needs and start collecting data

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<sup>10</sup> Consumption data for electricity and natural gas were not available for 12 of the 23 locations included in this study. These represent stadium concession stands, which are not sub-metered.



accordingly. These data, when put into the calculator, produce a map of carbon dioxide-generating activities, which, in turn, helps to create environmental priorities. A restaurant can focus its often limited resources on making activities that have potential for the greatest carbon reduction impacts more efficient.

#### Ivar's Recommends...

- **Make water efficiency a priority**, especially with appliances that use hot water (e.g. dishwashers).
- **Conduct preventative maintenance** regularly both inside and out (appliance servicing, vent cleaning and fans).
- **Lighting upgrades are a “no brainer”** – current lighting technology allows businesses to reap cost savings without sacrificing ambience or utility.
- **Reduce waste generated** – maximize recycling and use recyclable or compostable materials.
- **Compost now** - reduce waste and create a valuable soil amendment for local use.
- **Upgrade heating and cooling systems** - since they run continuously throughout the day.
- **Reduce office printing and copying** - use email or electronic memos to communicate and print double-sided.
- **Check with your utility providers to learn about rebates and technical assistance.**

## Contact Information

Bob Donegan  
President, Ivar's  
Phone: 206-587-6500



## **Appendix A**

The Information Needs Checklist which guides the data collection process. TO INCLUDE CHECKLIST FROM CARBON FOOTPRINT CALCULATOR IN FINAL FORMATTING.



## Appendix B

A sample tracking sheet used by Ivar's to record monthly consumption and cost data for electricity, natural gas, water/sewer, and garbage/recycling service.

### Utilities

January-09



ELECTRICITY	Received	Service		Kwh		Percent	Rate	Service	Daily	
	Date	From	To	Amount (\$)	This Yr					Last Yr
Location 1	14-Feb	29-Dec	31-Jan	7226.74	122025	112473	8.49%	0.059	33	\$ 218.99
Location 2	22-Jan	5-Dec	5-Jan	2925.95	50560	47050	7.46%	0.058	31	\$ 94.39
Location 3	22-Jan	18-Dec	17-Jan	3179.52	1265	1225	3.27%	2.513	30	\$ 105.98

GAS	Received	Service		Therms		Percent	Rate	Service	Daily	
	Date	From	To	Amount (\$)	This Yr					Last Yr
Location 1	27-Jan	23-Dec	24-Jan	4278.85	3579	3564	0.42%	1.196	32	\$ 133.71
Location 2	5-Feb	29-Dec	29-Jan	8554.61	7336	5702	28.66%	1.166	31	\$ 275.96
Location 3	25-Jan	21-Dec	22-Jan	5277.72	4439	1962	126.25%	1.189	32	\$ 164.93

WATER/SEWER	Received	Service		CCF		Percent	Rate	Service	Daily	
	Date	From	To	Amount (\$)	This Yr					Last Yr
Location 1	9-Feb	3-Jan	30-Jan	2924.92	293	255	13%	9.983	27	\$ 108.33
Location 2	12-Mar	3-Jan	31-Jan	58.80	50	41	18%	9.983	28	\$ 2.10
Location 3	20-Feb	13-Dec	11-Jan	96.47	98	70	28.57%	9.983	29	\$ 3.33

GARBAGE/RECYCLING	Received	Service		Service	
	Date	From	To		Amount (\$)
Location 1 - Garbage	5-Feb	1-Jan	31-Jan	2016.09	30
Location 1 - Recycling	7-Feb	1-Jan	31-Jan	696.16	30
Location 2 - Garbage	7-Feb	1-Jan	31-Jan	1980.75	30
Location 2 - Recycling	9-Feb	1-Jan	31-Jan	582.19	30
Location 3 - Garbage	7-Feb	1-Jan	31-Jan	2287.93	30
Location 3 - Recycling	9-Feb	1-Jan	31-Jan	331.10	30



## Appendix C

A screenshot of the Seattle Climate Partnership's Carbon Footprint Calculator (v 2.0) showing baseline carbon footprint results for Ivar's.

### Carbon Footprint Calculator



Results

#### INSTRUCTIONS

This worksheet summarizes results of the carbon footprint assessment. The results below are intended to help you assess what activities of your business contribute the largest relative shares of greenhouse gas emissions. All results are reported as metric tons (or million grams) of CO<sub>2</sub>. These figures should be interpreted as CO<sub>2</sub> "equivalents", because although most of these emissions are actual CO<sub>2</sub>, some of the emissions are from methane (from waste disposed in landfills).

For assistance assessing the relative costs and impacts of CO<sub>2</sub>-reduction options, please see the *Actions* worksheet. For more information on case studies of Seattle-area business actions on climate change and a list of resources on employer services and climate incentives, visit the Seattle Climate Partnership website (particularly the Seattle Climate Partnership *Resource Guide*) at [www.seattleclimatepartnership.org](http://www.seattleclimatepartnership.org).

**COMPANY FOOTPRINT:** 1,629 metric tons of CO<sub>2</sub>e annually, or 4.6 metric tons of CO<sub>2</sub> per employee

#### FOOTPRINT DETAILS

Transportation			
	Miles Traveled (Business Travel)	Miles Traveled (Commuting)	CO <sub>2</sub> (Metric Tons)
Car & Truck	245,323	-	96.9
Airplane	-	-	-
Train	-	-	-
Bus	-	-	-
Ferry	-	-	-
<b>Subtotal</b>	<b>245,323</b>	<b>-</b>	<b>96.9</b>

Energy Use			
	Quantity	Units	CO <sub>2</sub> (Metric Tons)
Natural gas	189,945	therms	1,007.9
Electricity	3,088,750	kWh	25.0
Steam	-	thousand lbs	-
Other fuels	-	gallons	-
<b>Subtotal</b>			<b>1,032.9</b>

Materials and Services			
	Quantity	Units	CO <sub>2</sub> (Metric Tons)
Paper	-	sheets	-
Other materials/services	-	-	149.3
<b>Subtotal</b>			<b>149.3</b>

Waste Generation			
	Quantity	Units	CO <sub>2</sub> (Metric Tons)
Disposed	834	tons	350.4
<b>Subtotal</b>	<b>834</b>	<b>tons</b>	<b>350.4</b>

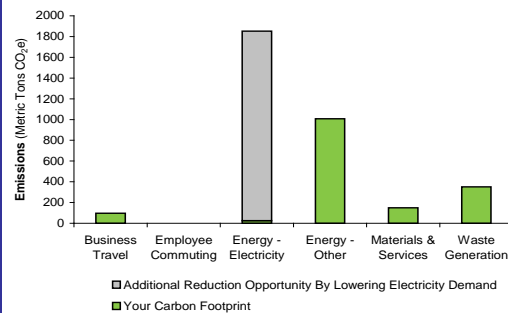
  

<b>Company Footprint (Total of Above)</b>	<b>1,629.5</b>
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#### EMISSIONS REDUCTION POTENTIAL\*

Footprint and Reduction Potential			
	Footprint (Metric Tons CO <sub>2</sub> )	Reduction Potential* (Metric Tons CO <sub>2</sub> )	Relative Reduction Potential (% of total)
Business Travel	96.9	96.9	3%
Employee Commuting	0.0	0.0	0%
Energy - Electricity	25.0	1853.3	54%
Energy - Other	1007.9	1007.9	29%
Materials & Services	149.3	149.3	4%
Waste Generation	350.4	350.4	10%
<b>Total</b>	<b>1629.5</b>	<b>3457.7</b>	<b>100%</b>

#### Relative Reduction Potential



\*Emission reduction potential is the amount of greenhouse gas emissions that can be reduced through actions taken by your organization. Note that the reduction potential for electricity, materials, and waste may be higher than your footprint in these categories. For example, the electricity emission factor (multiplier) for an organization's reduction potential is typically higher than the one for its footprint because the impact of load reduction is to reduce the operation of a fossil-fuel-generating plant in the region, not to reduce supply from non-emitting hydropower. This issue is described in more detail below.



## Appendix D

Ivar's has implemented or is testing at its facilities these carbon reduction actions.

Carbon Footprint Priorities	Action Items	Implemented (Full Service)	Implemented (Casual Dining)	Time Frame for Implementation	Not Cost-Effective/ Relevant to Ivar's	
Energy - electricity	Schedule energy audit by local utility staff					
	Upgrade heating/cooling systems	Perpetual				
	Upgrade lighting	Perpetual				
	Install motion detectors for lighting		Implemented (Salmon House)			
			Testing at plant			
	Switch to energy-efficient steamers, ovens, and holding cabinets	✓	Testing			
	Upgrade refrigeration	✓	Testing			
	Upgrade dish washing equipment	✓	Testing			
	Switch to low flow sprayheads	✓	Testing			
	Schedule regular hood and vent maintenance and cleaning	✓	✓			
	Schedule regular appliance maintenance	✓	✓			
	Implement behavioral changes (e.g. adjusting temperatures, using lids, reducing preheat time, implementing end-of-day shutoffs)	✓				
Implement demand control (interrupting non-essential energy use during emergy demand spikes)						
Energy - natural gas	Upgrade to efficient deep fat fryers	Testing	Testing			
Waste generation	Recycling	✓	✓			
	Composting	✓	✓			
	Grease recycling	✓	✓			
	Re-use materials	✓	✓			
	Use durable products	✓	✓			
Materials & Services	Purchase recycled content food service products	✓	✓			
Business Travel	Encourage purchase of more efficient vehicles					
	Reduce need for business travel					